SCAM ALERT! **9 WAYS TO SPOT COUNTERFEIT BIKES & FAKE STUFF** P.84

THE CHOCOLATE

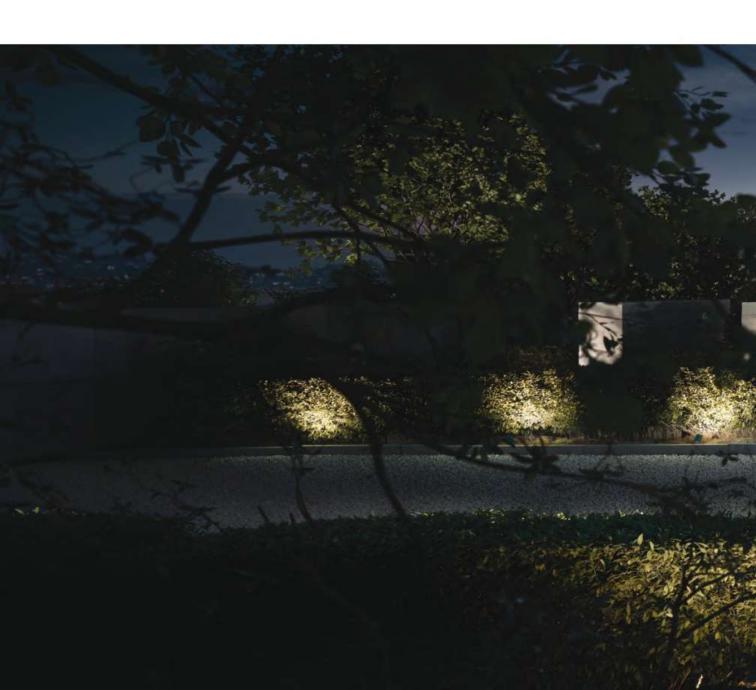
23 TRICKS TO HANG WITH FAST PACKS

HOW TO MAKE ANY CLIMB EASIER



Now, let's see. Behind us, on both sides of us, and down in front.

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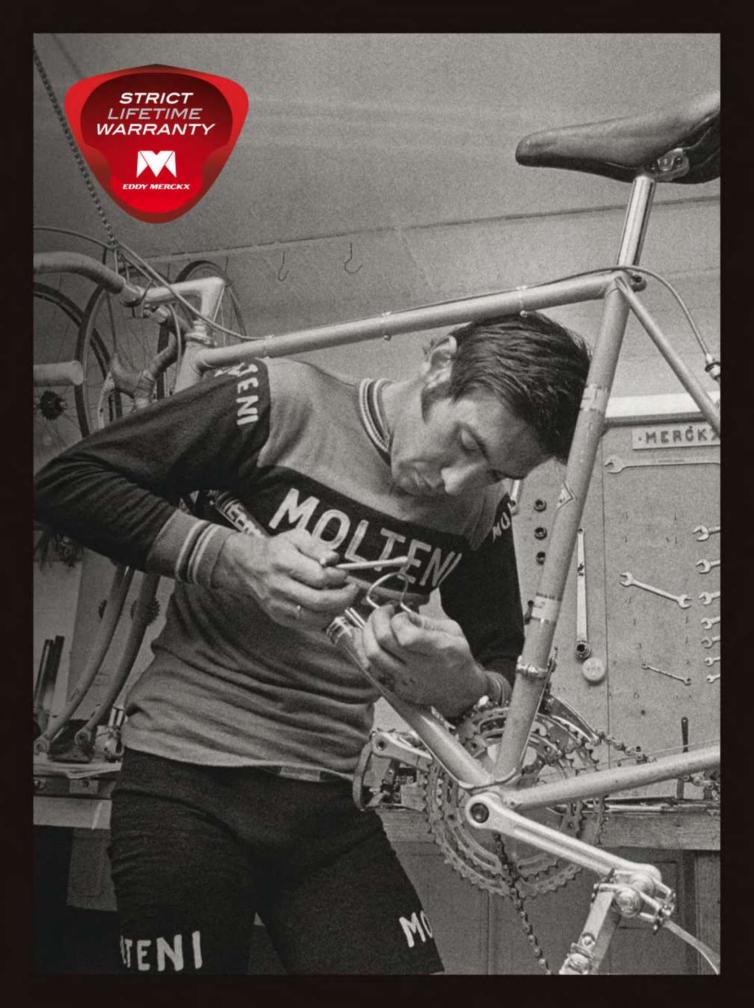


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PAIN IS IN THE EYE

of the beholder



SRAM.

This is Jeremy Powers. He is grimacing because he is in pain. His legs are on fire because he needs to be the first into the turn. He doesn't care how fast he's going. Not because he's crazy. But because he knows his SRAM HydroR disc brakes can help him to control his speed, no matter what. So Jeremy rides as fast as he can. Always.

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2015 // VOLUME LVI // NUMBER 10







DROPPED!

Six inspiring cyclists share their stories of how being left behind on a ride can actually help you get ahead. PLUS 23 ways to hang with fast packs. By Becca Schepps

ZOOM IN

Cutting-edge tech isn't just for bikes. These 10 pieces of kit feature performance details that will have you crushing rides in comfort—and winning all the style points. By Matt Phillips

That \$500 race frame you saw online looks like a great deal, but it could be a dangerous fake. Inside the mysterious world of counterfeit gear. BONUS How to avoid a scam. By Joe Lindsey

FOR BONUS TABLET CONTENT FROM THIS AND PAST ISSUES, GO TO BICYCLING.COM/IPAD AND DOWNLOAD THE APP.





BAGGY SHORTS AND JERSEY TEST

Comfort tested in a 400-mph wind tunnel. Good to know when you're flying over the handlebars.

Happy Trails.





PRIMAL

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ON THE COVER | Photographed by Kent Pell. Five versions, five incredible 2016 superbikes







Pivot Mach



Cannondale CAAD12 Disc



BMC teammachine ALR01



Trek Madone 9-Series Project One



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When muscle cramps hit Dr. Rod MacKinnon while kayaking in rough waters, two things smacked him like a raging rapid: fear and insight. The fear of being stuck in shark-filled waters triggered an insight for the Nobel Prizewinning neuroscientist that set him on course to invent the most effective way to prevent muscle cramps. His genius discovery? To treat the nerve instead of the muscle. Along with fellow kayaker and Harvard Medical School professor, Dr. Bruce Bean. Rod set out to find a solution. Their four years of researching, testing, and electrifying led to a scientific breakthrough that will improve athletic performance forever.



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November/December Vol. 56 No. 10









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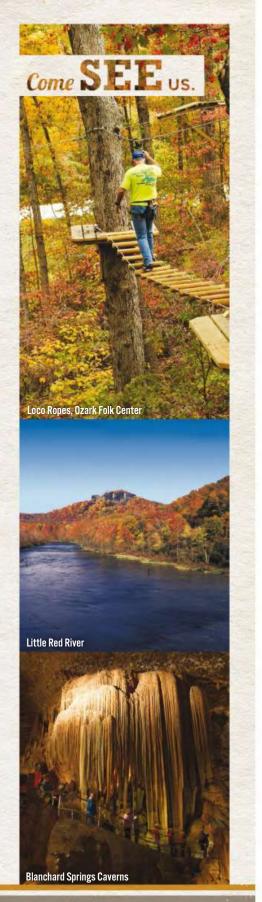
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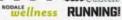
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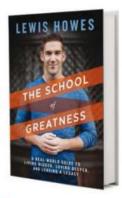


MAVIC LE SANG JAUNE

The Selection by BILL STRICKLAND

THIS MONTH'S TOP TIPS, BEST ADVICE, AND PERSONAL PICKS FROM OUR EDITOR





On page 60, we talk with Lewis Howes about the ideal of greatness as it applies to cycling. Howes, who I got to know when he interviewed me for his online summit, Unleash Your Greatness, is a scrapper with an interesting backstory I could identify with, and the author of the new Rodale book, The School of Greatness. You can see our talk about overcoming adversity-and what could be more fitting for a cyclist?—at GreatnessSummit.com

A good <mark>ride so</mark>metimes reminds me that the literal mea<mark>ning of carpe, in</mark> Latin, is *pluck*. A day doesn't always have to be seized. It ought to be, when ripe for the doing so, plucked.

YOU HAVE A CHANCE this issue to do something cool—and perhaps life-changing. Go to page 29 and read up on how you can gift someone two free issues of BICYCLING. No tricks, no traps. We just want to help you get our pages

in front of anyone who might someday, in some way, come to love the ride the way you and I do. And don't stop with the gift—get out there on the bike with your recruits, show them how to fix a flat, and how to stop to enjoy ice cream and sunsets.



MY FAVORITE WATCH **IS A MECHANICAL**

automatic, and this summer I decided that even though electronic shifting is better than cables in so many ways, I just don't like having to charge my bicycle to ride it. No surprise then that once I found a manual coffee grinder I liked, my old corded standby got demoted. This Japanese glass-and-iron Hario has a good range of coarseness adjustment and yields a satisfying audible and tactile crunchiness as you crank. Check it out at our new online BicyclingStore (shop.bicycling.com), which is stocked with stuff chosen by our staff to fulfill and enhance the cycling lifestyle—as well as our own cool stripey socks and water bottles.

















The latest tracker from Fitbit



Introducing **Fitbit Surge**—the fitness super watch that helps you take every workout to the next level. Whether you're cruising or crushing it, bike mode captures important stats about your ride. With built-in GPS, continuous heart rate, all-day activity tracking and week-long battery life, you can get the info you need to train smarter, go farther and find your fit.



















SYNC WIRELESSLY

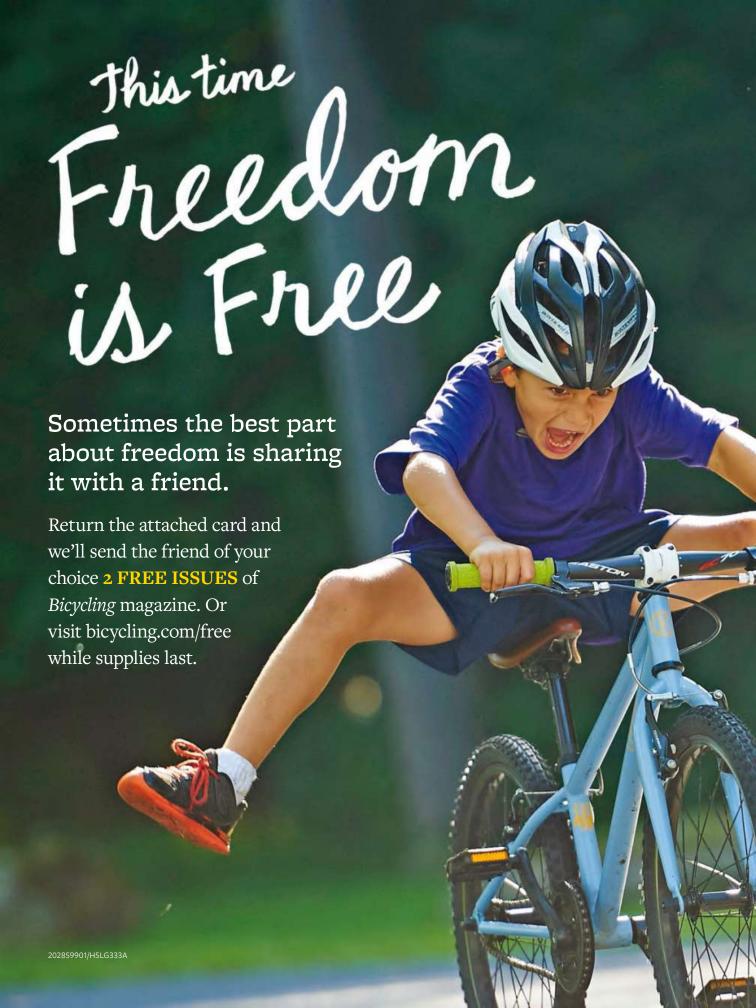




Ask BICYCLING

ALL YOUR RIDE QUANDARIES—SOLVED!





Ask BICYCLING

► Should I Strava my rides to work?

It depends on what you're trying to achieve. Whether or not your daily ride to the office nets you any trophies, using Strava is still a worthwhile way to track mileage. If your commute is long enough

to double as a training ride, or if you're just interested in seeing how many car trips you cut out during the year, then go ahead and press that orange start button.

Of course, some riders prefer the uncomplicated cruising that accompanies a spin to work. If you're happier clearing your head than charting your miles, keep your data off.

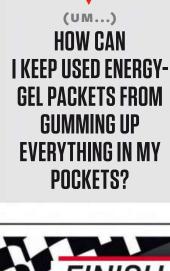
► Is it okay to heckle at races?

Sure, but use some common sense. Even the racers who appear to be having fun are still working hard and (sometimes) trying for a good result. Target people you know, and shoot for cleverness over cruelty. Your goal should be to get the person you're razzing to laugh or even just smile through the haze of pain. And stick to words—physical contact is out of line. Beer or bacon hand-ups? Fine. Beer spraying? Unacceptable.

▶ I want to help pull at the front of the paceline, but I'm not as strong as the rest of the riders. How long should I pedal to do my fair share?

A paceline works most efficiently when every rider shares the load to the best of his ability: no more, no less. When it's your turn to lead, maintain the pace for as long as you can without frying yourself (even if that's just 45 seconds) and then pull off. In general, each cyclist should sit at the front for no more than two to three

Gel is sticky business, so we consulted an expert: Yuri Hauswald, marketing manager for GU Energy Labs and a burly ultraendurance racer who sucked down 112 gels in the month of May alone. His advice: Tear the top open, leaving the tab attached to cut down on litter. Put the open end in your mouth and squeeze the gel from the bottom up, folding the packet like a tube of toothpaste as you suck down the fuel. Then crease the top of the packet down and bend the bottom part around it so there's no leakage in your pocket.













MAKE THE RIDE LESS SCARY

Introducing four **NEW** multi-tools to avoid nightmares along the way. Ride with Park Tool, ride with confidence.









Ask BICYCLING

minutes—lengthier pulls can make you more tired as the ride goes on. If there are a couple of significantly stronger cyclists in the line, they can take longer, five- to 10-minute pulls to even out everyone's efforts. The more consistently you ride with the group, the fitter you'll get and the longer you'll feel confident on the front.

► My last road bike came with three chainrings. Now they all seem to come with two. What happened?

Cranksets with three chainrings (also known as triples) offer a wide range of gears and a supersmall ring, which helps even the most inexperienced cyclist climb hills with relative ease. But they come with two key drawbacks: They're heavier than cranksets with only two rings, and they don't work as well. The extra chainring adds more distance

for the front derailleur to travel, which means more dropped or jammed chains and poorer shifting performance.

The solution, the compact crankset, came from the back of the drivetrain. As manufacturers added more cogs to their cassettes, they were able to offer wider gear ranges. This meant they could reduce the number of front chainrings while still maintaining the middle gear ratios, which eliminated the need for the clunky three-ring system.

▶ I always bring a toolbox to rides, and lately I've been doling out lube to the same buddy every weekend. How can I tell my friend he's running me dry?

Be direct, but kind, says Patricia Napier-Fitzpatrick, founder of the Etiquette School of New York. For example: "I don't mind you READER SURVEY

WHICH OF THESE CYCLISTS WOULD YOU MOST LIKE TO HAVE A BEER WITH?

JENS VOIGT56%
LANCE ARMSTRONG22%
EDDY MERCKX11%
BRADLEY WIGGINS7%
EVELYN STEVENS2%
MARIANNE VOS2%

SOURCE: BICYCLING FACEBOOK POLL

borrowing my chain lube occasionally, but it's probably time you get some for yourself." If you prefer to avoid confrontation, it's okay to get a little sneaky. Tell your friend that, sadly, you're out of lube—because it runs out much faster when multiple people use it.

Either way, recommend your favorite brand for his purchase. Your buddy obviously trusts your excellent taste in bike products, and the next time you're out of lube (or maybe even if you're not), it's only fair that you should ask to borrow some of his.

► Is it possible to wear a helmet-mounted camera without looking like a dork?

No. Even the raddest of rad pros look a tad goofy with a camera strapped to their heads. But if dorking out in the name of a good time is wrong, then we don't want to be right.













quick-release safety lock



all-weather





NK1K

The masterful design of the NKIK, featuring sharp and aggressive lines, embodies both the revolutionary design that Cipollini is known for and the cutting-edge technologies demanded by the fastest riders. A tapered head tube gives this bike a fast, aerodynamic profile, helping riders to go faster than they ever thought possible. Two brake options—disc calipers or direct-mount calipers—allow riders to control their incredible speed, shooting toward turns faster before slowing at the last moment.

The NK1K gets you to the finish line first. Every time.



Ask BICYCLING

▶ I heard I can pour Coke into my frame to loosen a seized seatpost—is that true?

Mechanics have long recommended the "real thing" as a lastditch home remedy for locked-in parts. "Coke's corrosive properties will eat away galvanic corrosion if you pour a can down the bottom-bracket shell and let it sit overnight (while the bike is upside down and the bottom bracket is removed)," says veteran mechanic Tommy Tuite, owner of Tuite Bicycle Repair in Portland, Oregon. However, it might not be the most effective way to get the job done. "I personally use the penetrating catalyst PB Blaster for metal stuck on metal." Hmm... corrosive properties, you say? Can't beat the feeling.

HOW MANY YEARS LONGER CYCLISTS WHO REGULARLY **RODE AT HIGH INTENSITY** LIVED WHEN COMPARED WITH THOSE WHO RODE AT AN EASY PACE FOR THE SAME AMOUNT OF TIME. SO GET MOVING— YOUR LIFE DEPENDS ON IT.

SOURCE: EUROPEAN JOURNAL OF PREVENTATIVE CARDIOLOGY

► What's the quickest way to get better at hills?

Use good technique, says BICY-CLING contributor Selene Yeager, a certified cycling coach and fitness trainer. As you approach the hill, make sure you're in a gear that's easy enough to keep the pedals moving smoothly. Then follow these steps:

SLIDE BACK AND DIG IN Move back on your saddle and tuck in your elbows. This engages your core for a more solid pedaling platform and helps you harness additional power from your upper body. Drop your heels as you come around the top of the stroke. This is key to getting your powerful hamstrings into action.

SCOOT FORWARD AND SPIN On long climbs, give your legs a little reboot. Slide forward toward the saddle's nose and spin a little faster for 30 to 60 seconds to transfer the workload to other muscles.

Move back once that time's up. **STAND UP TO CREST** When you can see the top of the hill, shift to a bigger gear, get out of the saddle, and power yourself up and over the top. Keep your hardearned momentum by continuing to pedal as you start to roll down the other side.

My local trails have crazybig logs and rocks, which makes the trails really hard to ride. Is it okay to remove them?

If the trails are on your property, have at it. Otherwise, you should ask permission from whomever maintains them. On private singletrack, this may be a trail group; for public land, check with local authorities. Logs and other barriers might be there for practical reasons, such as deterring motorized vehicles. But most often, trail obstacles are in place to give more experienced riders a challenge. A

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teammachine ALR01

A Teammachine for all

The all-new Teammachine ALR01 road series delivers our Swiss, Premium, Performance values to cyclists that have long-dreamed of owning a BMC. The triple-butted, hydro-formed, TCC frame inherits a beautiful, traditional road geometry with nothing short of brilliant acceleration, while its full-carbon fork delivers a compliant front end and excellent handling.



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WINNING ADVICE

HOW DO YOU DEAL WITH RUDE DRIVERS?

A smile goes a long way to ease the situation and pave a path to resolution. If you must wave, use all five fingers.

GEOFFREY MOULTON GLENSIDE, PENNSYLVANIA



Great advice, Geoffrey! One more reason to smile: Your new Park Tool Home Mechanic Kit

SHARE YOUR BEST TIPS TO WIN!

What's your most indispensable piece of cold-weather gear?

Submit your answer to BICYCLING@rodale.com with the subject line "Winning Advice." log that looks unrideable to you could be the best part of a trail for a more skilled mountain biker. If there's something you can't clear, practice until you can, or get off and walk it.

When is a baby old enough to be pulled in a bike trailer?

According to the American Academy of Pediatrics, little ones shouldn't be riding in a trailer or in a child seat on a bike until they're old enough to wear a helmet-about 12 months. "Kids need to be able to hold their heads up by themselves and have good neck control," says Elizabeth Williams, MD, a pediatrician and avid cyclist. If your child isn't ready, putting a helmet on him could strain his neck muscles; park the trailer for now. You have a lifetime of family rides ahead of you.

► How come all the oldest bike races are in Europe didn't any of the ones in the **United States survive?**

In one word: money. To attract the sport's biggest and best teams to an event, you have to pay them to come, and cover their expenses. In the US, that often means shelling out for overseas plane tickets. That wouldn't be a big deal if the races generated a lot of revenue, but promoters often struggle to make a profit—or just to break even. In Europe, pro cycling races draw huge crowds. When people see the race, read about it, and watch it on TV, it generates more sponsorship dollars. That makes it easier for races to stay afloat.

Luckily, pro cycling in the US is enjoying a bit of a renaissance. Events like the Tour of California, which just celebrated its 10th

anniversary, and Colorado's USA Pro Cycling Challenge attract many of the world's best squads, and in September the UCI Road World Championships were held on American soil for the second time in history. The US has a long way to go before boasting events as old as Paris-Roubaix, but if interest keeps growing, there's reason to believe that one day we may have a legendary event of our own.

TALK WITH US

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NATURE'S ENERGY GEL

Tap into maple syrup for a sweet surge in power

BY JENNIFER WARD BARBER

PROTECT YOUR MUSCLES 63 phytonutrients give maple syrup antioxidant properties comparable to those of red wine, tea, and berries. Antioxidants can help undo some of the damaging effects of regular exercise on your cells and muscle tissue, leading to faster recovery after workouts.

CALORIES PER 100-

SUCROSE. The primary source of carbohydrates in maple syrup. Sucrose breaks down in the body into both glucose and fructose, which you can absorb simultaneously. As sports nutrition guru Allen Lim says, "It's like having two lanes open on a highway instead of just one." You can metabolize more fuel than if you ingested complex carbs like pasta, which just break down into glucose, or fruit sugars, which become fructose.

OF THE WORLD'S MAPLE SYRUP COMES FROM, THE VAST MAJORITY OF WHICH ORIGINATES IN THE PROVINCE OF QUEBEC

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MAPLE SYRUP CONTAINS NATURAL ELECTROLYTES, MINERALS, AND TRACE VITAMINS THAT BOOST YOUR IMMUNE SYSTEM.

The number of ingredients in Untapped All Natural Athletic Fuel, a line of energy packets filled with pure, New England maple syrup.

SERVING

ALL-NATURAL MAPLE SYRUP SPORTS DRINK

3½ CUPS COLD WATER 1/4 CUP PURE MAPLE SYRUP **¼ CUP ORANGE JUICE**

2 TABLESPOONS LIME JUICE, FRESH SQUEEZED OR BOTTLED

A PINCH OF SALT

Makes two 16-ounce bottles. Aim to drink one per hour on the bike. If you'll be riding for more than 90 minutes, combine with a snack to meet your energy needs (about 30 to 60 grams of carbohydrates per hour).

130

241mg

32mg

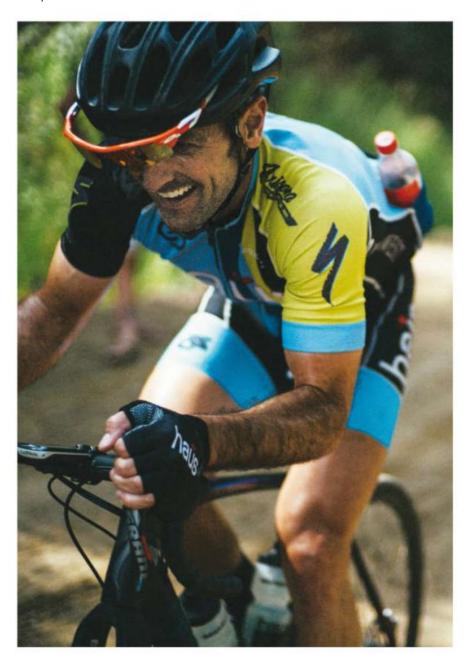
168mg

Maple syrup is water-soluble, so you can digest it quickly and easily during exercise for fast energy.



5 Habits to Break on Dirt

Tweak these pure-roadie practices to maximize your off-pavement fun by MOLLY RITTERBECK



TIRES WAY UP // Prep your bike with a bigger set of tires. "Wider tires with lower pressure will give you more comfort, control, and traction," says Brandon Dwight, a four-time US national cyclocross champion and owner of Boulder Cycle Sport in Boulder, Colorado. Install the biggest tire that will fit your frame (most road bikes can accommodate 25mm or 28mm tires) and experiment with different pressures. Try dropping three to five PSI at a time to see what feels best for you, he says.

PUMPING YOUR

STAYING GLUED TO SOMEONE'S WHEEL // Riding dirt is all about picking good lines and avoiding hazards. If you're riding in a group, give each other a little more space than you would on the road. This will allow you to scan farther ahead, giving everyone more space to react to obstacles like rocks and holes.

CARRYING JUST
A TUBE AND CO₂

You're much
more likely to have a
mechanical on rough
terrain, so bring
two tubes, plus a

vulcanizing patch kit (the kind that has a rubber cement-like solution) and a multitool, says Burke Swindlehurst, founder of the half-road, half-dirt race, Crusher in the Tushar. And as with pavement riding, a backup hand or frame pump is always a good idea.

RELYING ON CIVILIZA-TION // Dirt roads often lead to remote locations, and any mileage will take longer than it would on pavement. So plan ride time accordingly, and bring extra food and fluids, says Swindlehurst. "Check that you have cell service and let someone know where you are," he adds. "If at any point you lose bars completely, it might be a good time to turn back."

RIDING AGGRESSIVELY // Take corners wider on dirt than you would on pavement to avoid sliding out, says Meredith Miller, who rides for (and owns) the Noosa Professional Cyclocross Team. And rather than hammering out of the saddle, stay seated and keep your weight back over your rear wheel on climbs to maintain traction.

How do I get grease stains out of my clothes? Generously rub a stain stick like Resolve's Gold on the mark and let the clothing sit for the recommended amount of time, says Niki Detrick, head soigneur for UnitedHealthcare Pro Cycling. Or use a bike degreaser or a dish detergent like Dawn, and scrub the mark lightly with a toothbrush. Let it sit for about five minutes, then rinse. You may need to repeat this step a few times to get out as much grease as possible. Then wash the clothes in warm water—cold water will not break down oils, and hot water breaks down elastic—and make sure the stain is gone before drying.

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Men and Women Are Not Created Equal

Yeah, we just said that. When it comes to training, you should approach these four aspects differently. BY SELENE YEAGER



It takes guts to break out on your own. Comfort is key, so you can focus on the attack. Chamois Butt'r $^{\circ}$ products keep skin and muscles happy, mile after mile. Featuring industry-best Chamois Creams, muscle-warming Embrocations and the new GoStik $^{\text{TM}}$ to ease chafing where fabric touches skin. Plus, Skin Wash and Kit Wash for post-effort clean up. Put the full arsenal to work, and experience the advantage that true comfort can bring.















Men should down a protein drink or bar (aim for 25 grams) within 30 minutes of finishing an intense session. After that, you have three to six hours to get carbs into your system.

Women have a much shorter recovery window, and your bodies are also more prone to breaking down muscle tissue during hard exercise. Eat 30 grams of protein within 30 minutes of completing a hard workout, then take in carbs within the next 90 minutes.

2 Strength Training

Men are born with more upper-body muscle, too much of which isn't a big asset on the bike. You can stick to mostly lower-body and core work.

Women are born with less upper-body muscle and tend to have a weaker core—both of which affect bike handling and stamina. Along with leg work, bang out full-body moves like push-ups to build and maintain lean muscle head to toe.

3 Hydration

Both sexes can follow the latest recommendations published in the Clinical Journal of Sport Medicine by simply drinking on the bike when you feel thirsty.

Women should also "prehydrate" during the days just before their period, when hormones can cause blood-plasma volume to drop up to 8 percent before you turn a single pedal stroke. Before long rides, take in some salty liquids (sodium helps you absorb fluids) like chicken broth, miso soup, or a prehydration beverage like OSMO Preload.

4 Flexibility

Men have tighter hamstrings, which can make it hard to get aero and still generate a lot of power. Do exercises that stretch hamstrings and strengthen the glutes (which help the hamstrings).

Women tend to be more flexible.

But wider hips can make inner
thighs tighter and outer glutes weaker, and reduce stability in the saddle,
causing knee and hip pain. Strengthen the outer glutes and stretch the
inner thighs.

► Go to **BICYCLING.com/ menvswomen** for flexibility moves.

SK AN EXPERT



I hear people say it's okay to gain a little weight during the off-season. But what's a healthy amount?

It's good to take a break and let your body and mind recover during the months when you're not riding as much, but gaining too much weight may make it difficult to get back on track when you're ready to return to regular riding, says Christopher Rosimus, performance nutritionist for ONE Pro Cycling. A moderate amount of weight gain for someone with a slighter build is about 3 percent of your weight during your peak riding months (4.5 pounds for a 150-pound rider) and up to 4 percent for those with more powerful or muscular body types, says Rosimus. To ward off those winter pounds, bump up your protein intake during the off-season and limit carbohydrate intake to about 150 grams on days you don't ride.





KNOW

Helpful Advice From All Kinds of Riders

THE ONE THING That changed it al

TURNING LEFT

When I graduated from high school in 2005, I had no car, no rent-I lived in an art gallery in Los Angeles. I was riding my Cannondale R800 to pick up cookies when I stopped to check out a bike shop. People started looking me up and down. A man named Frank Potts said, "You should be a bike racer." When he took me to the velodrome in Carson, California, I was overwhelmed by how cool the wooden, banked track was. Not only did I get certified to ride the track that day, but I also accidentally won three beginner races. The instructor let me line up, and I just went as hard as I could. I'd never seen cycling as a competitive sport—I'd always been an artist, and most of the ones I knew weren't big on physical activity—but I was hooked. ADAM K. MASTERS, 28 / CYCLING TOUR GUIDE AND BIKE SALESMAN / LOS ANGELES

Jamaica Lambie, 40, has worked on thousands of bikes during cause rides, races, and tours. He shares tips to keep your bike happy over a long haul. BY STEPHEN KROMAR

BEFORE YOU GO

KNOW HOW

SPRING FOR A BIKE

• "You can have a really nice bike, but if it doesn't fit well, you'll struggle." Take your bike to the shop a few weeks before the event so you can make sure everything is dialed.

PROTECT YOUR

shipping or flying with your bike, shift it into the farthest-in gear before boxing it. Even better: Unbolt the rear derailleur from the hanger, pack it in bubble wrap, and tape it to the chainstay.

HAVE A PLAN B

"If I were driving across the country, I'd be better off in a Ford than a Lamborghini—I'm going to be able to find a radiator belt." Spare parts can be hard to come by in remote areas. Riding exotic boutique wheels? Bring a few extra spokes. Got electronic shifting? Pack a spare battery.

ON THE ROAD KEEP IT CLEAN

"Wipe your bike down at the end of the day. That's how you find out if something is loose

HANDLE SMALL

or broken."

REPAIRS YOURSELF

That way event staff can help someone who'd otherwise be stranded. For example, you can usually cure a poorly shifting rear derailleur with a counterclockwise half turn of the shifter-cable barrel adjuster.

BE GENTLE "Most broken seatposts come from riders overtightening the bolt to fix a creak." To quiet a squeaky carbon-fiber post, slather it with carbon grip paste and tighten the bolt with a torque key [a wrench that clicks when you've reached a certain amount of torque]".

BOOST YOUR KAR-

MA If a mechanic helped you on the road, say thanks with a smile, a tip, or a treat.

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Threshold French Bulldog Cookie Jar

When I moved to Emmaus, Pennsylvania, to work at BICYCLING, I was excited to decorate my first "real life" apartment. This cookie jar never made it home, but resides on a shelf in my office, wearing stunner shades. I could keep ride snacks in it, but I don't—there's something messed up about eating the dog's insides. \$20

Liv Envie Advanced Pro 0

I didn't know love until I met this aero road bike. It's designed to slip through breakaways and win field sprints, but it's also forgiving enough for hammering out a century. My partner in crime and I have racked up numerous podiums, wins, and, yes, jealous glares. \$8,300

Panache Full Stripe Kit

Stripe Kit
I've been obsessed
with Coloradobased Panache for
ages. This kit lets me
feel feminine and
fast without having
to roll around in a
hot pink skinsuit. It's
also supercomfortable: I conquered
80 miles and 11,000
feet of climbing the
first time I wore it.
\$200, bibs;
\$130, jersey

Corporate Challenge Trophy

The BICYCLING staff recently took to the track to compete in a race against other local businesses and managed to snag the win—and this sick trophy. Seeing everybody get so stoked about racing made me remember why I ride. At least once, every cyclist should have the experience of pedaling with others to meet a goal, whether it's completing a gran fondo or charity ride, or even finishing a local criterium. Priceless

KitBrix

I'm generally a mess in all aspects of life-my car, my apartment, and especially my bags, which have been known to explode all over parking lots on race day. KitBrix helped me finally get organized. The bag fits my race essentialsa pair of shoes, a kit, and a helmetand has pockets for my gels, tools, and other sundries. If you buy more than one bag, you can zip them together to make a backpack. I stock one for a morning weighttraining session and another for an afternoon ride. \$70

CHOSEN BY Staff writer ELSPETH HUYETT, the office's resident crit specialist, Snapchat expert, and guru of all things millennial. #turndownforwhat





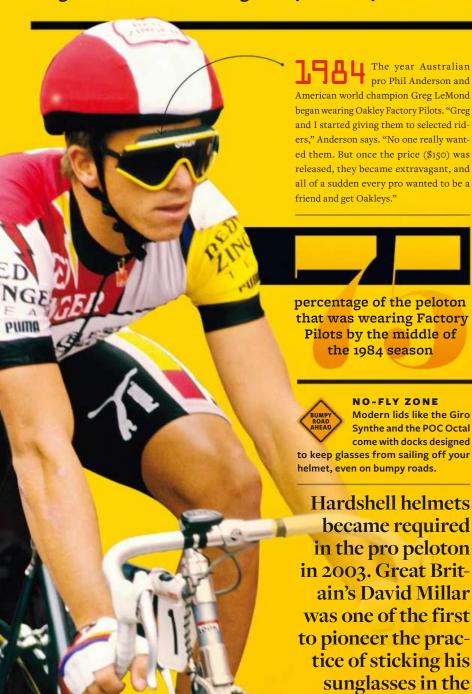


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Why do bike racers wear such crazy shades? Which helmets play nice with sunglasses? We talked with gear experts and pro riders to find out. BY WHIT YOST



3 STYLE AND SAFETY TIPS

TRY BEFORE YOU BUY // If you have a favorite helmet, take it with you when shopping for sunglasses (and vice versa) so you can see what looks best together.

SUNGLASSES OVER HELMET STRAPS // It makes for better helmet fit, and lets you take glasses off gracefully during a ride.

STOW SAFELY // On hot days, stashing your shades behind your head can leave a lot of sweat on your lenses. Put them in the front of your helmet or in a pocket that doesn't contain anything that could scratch them, such as multitools and CO2 cartridges.

OLD IS NEW Before Oakley became popular, most riders wore everyday shades such as Ray-Ban Aviators. Today, models like Rapha's new Classic Sunglasses blend the style of the past with the technology of the present.



front vents of

his helmet.

THE AERO ADVANTAGE YOU'LL GET FROM A HELMET WITH A **BUILT-IN VISOR, ACCORDING** TO SPECIALIZED WINDTUNNEL **ENGINEER CHRIS YU. TYPICAL** SUNGLASSES ARE AS GOOD OR BETTER, "ROUND, SPHERI-CAL SHAPES (LIKE OUR HEADS. OR THE FRONT OF HELMETS WITH SMOOTH VISORS) ARE **ACTUALLY AERODYNAMICALLY** POOR," WU SAYS.



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TORCH BEARER

Caren Hartley rolled onto the UK frame-building scene with her award-winning bike, The Demi Porkeur, a cheeky mashup of a classic porteur and a modern fat bike. American frame builder Natalie Ramsland chats with the former jeweler and sculptor about her new career.

How did you go from making art and jewelry to building bikes?

I became more dissatisfied with the art world and at the same time was becoming a keener cyclist. Then I had a bit of a brain wave: "Hold on, bikes are made of metal. And metal's the thing I love." Although my [artistic] work was often about use and relationships people had with objects, the things I made were never really used. So it's nice to now make something that people can actually build a relationship with.

Tell me about the first bike you built for yourself.

It's the first one that really fits me properly. It feels responsive and kind of nippy because it's got such a short wheelbase. I went to France this year and challenged myself to ride three ascents of Mont Ventoux in one day. I was terrified about descending. But it is so much better having a bike you're confident in. I actually enjoyed the descents, which surprised me!

What is your favorite part of frame building?

The brazing. We call it soldering in jewelry, but it's all the same process. I've always loved it because it's kind of magic, isn't it, when you are joining two pieces of metal?

What tools in your shop do you treasure the most?

The files I used as a jeweler. I've had them for a long time, and with silver you don't wear them out in the same way. And then my jeweler's piercing saw, which I use for cutting out the lugs and for cutting the silver details and head badges.

If you could build a bike for anyone, who would it be?

I think Beryl Burton, a British rider. She had health issues and her husband said, "Maybe you should ride a bike." So she rode a bike, then started riding with the men's cycle club. Within about three years she was killing it and leading them out all the time. She was the British time trial champion for 25 consecutive years [from 1959 to 1983]. She was doing it in a time when the doctor would tell her, "Don't overexert yourself. Your weak female body might not be able to take this extended exercise."

Is there a moment in frame building that you're most proud of?

I suppose the big send-up project that I've done so far is the Porkeur. The person I was making the bike for [photographer Camille McMillan] is from a fine-arts background too. Our ideas totally worked together—I could do anything and he'd love it. It was stressful because I felt like I was designing something and learning how to do it at the same time. I got it finished, by the skin of my teeth, for Bespoked, the UK Handmade Bicycle Show. And then I won a prize for it.

Yay! What's next?

I've been asked to be in London's Design Museum's next show, Cycle Revolution. I want to keep the frame and parts as British as possible because the exhibition's cornerstone is about the cycling revolution that's happened in this country. Ten years ago my friends thought I was weird for riding a bike. And now it's like, "Well of course you ride a bike. How else would you get around?"







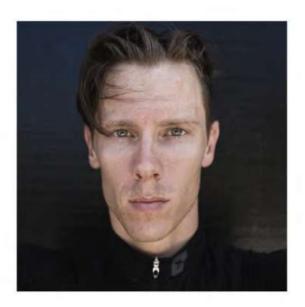












KNOW HOW

Capture Your Ride!

Chris Riekert, PR manager for Specialized and an elite road racer, is one of the fastest riders to ever pedal with a selfie stick. Here are the photography practices and products he geeks out over.

1 ► #battenspill

This is an example of great storytelling. Angelo Calilap (@angelocalilap) took a bad tumble at the Tour of the Battenkill. Over the next few weeks, he used this hashtag to document his recovery on Instagram. If you are going to cover an event, make a plan. Look at all the content you've created and don't be afraid to trim—post only what moves your narrative forward.

2 ► Squaready

Sometimes my most creative content comes from working within a set of rules; for example, Instagram's square-only format forced me to pay extra attention to photo composition. While you can now upload landscape and portrait photos to the platform, landscapes in particular will display more cleanly in your feed if you use an app like Squaready, which allows you to format an image to the aspect ratio that works best for the media.

3 ▶ Point-and-shoot cameras

When cell phone companies started adding megapixels to their cameras, the tech world declared the point-and-shoot dead. I don't 100 percent agree. The new class of cameras gives you huge flexibility. Two of my favorites: the Sony RX100 IV and the Ricoh GR. Both have full manual controls and easily fit into a jersey pocket.

4 ▶ Printing photos

Scrolling down a social-media feed just doesn't have the same feel as thumbing through a stack of 4x6 prints. There are a bunch of websites that will create prints of your images (I like Mpix .com—it's easy to navigate, accepts high-resolution uploads, and offers great print quality). Order some, then send one to your mom.

5 ▶ Putting the camera down

If I were going to check out the finish of the Tour de France on the Champs-Élysées, and the only camera I had with me was my phone, I'd just watch the race. Soak in the experience rather than take a blurry photo over the top of a crowd. Plus, if you don't have photographic proof, who's to say that Vincenzo Nibali didn't ride by and give you a high five?











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IN HIS NAPA VALLEY SHOP,

KNOW HOW

chocolatier Chris Kollar concocts tantalizing confections (including the nut-and-seed-packed Kollar Fuel shown here) that are inspired by his rides.

To get through hard efforts on the bike, the 42-year-old former bike racer relies on a variety of mental tricks. "On long rides, when I'm just trying to survive and get home, I'll look for herbs growing on the side of the road and stick a handful between the cables on my handlebar," he says. The aroma, it turns out, takes his mind off the pain. Although Kollar admits that he doesn't have "much scientific proof" for why it works, the idea that scent can influence brain chemistry is the premise behind the centuries-old practice of aromatherapy.

Sometimes this mental scorcery results in a culinary breakthrough. "I was on a climb, hurting pretty bad," he says. "I grabbed some wild fennel and started chewing it like tobacco—I grew up in Georgia, where everyone around me used chaw." The distraction worked, and today, Kollar's shop sells a truffle he dreamt up on that ride, made with milk chocolate and fennel pollen.

Even if your roads aren't as fragrant as Kollar's, you can still employ one of his tricks. "I read a long time ago that soft thoughts can take your mind off hard thoughts," he says. "So I picture clouds and cotton balls."—MOLLY HURFORD

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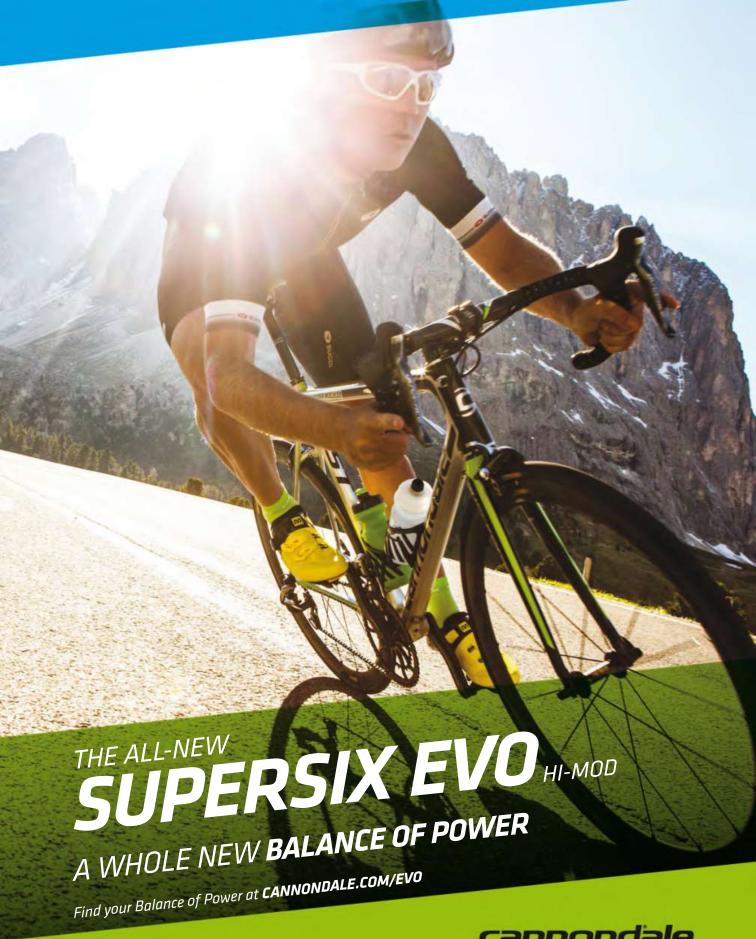
Lewis Howes is also a former pro football player and a member of the US handball team with dreams of competing at the 2016 Olympic Games in Rio. The author of *The School of Greatness* (Rodale, October 2015) has built a career around helping people reach their potential in all areas of life. Here, he shares some secrets to performing your best on the bike.—MOLLY HURFORD

▶ Make the most of your morning The things you do before you get on the bike matter. All the successful people I interview for my School of Greatness podcast have a morning ritual. For me, that's an 11-minute meditation when I wake up, right before I work out. When I set an intention for the workout it puts me in a positive

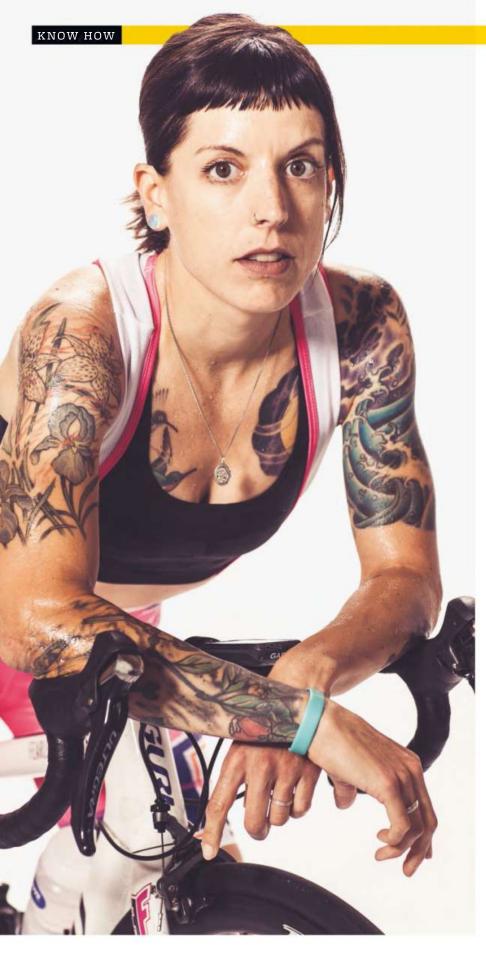
state to give my best and gets me feeling productive. Without it I stop early or I don't push as hard.

▶ Find an accountability partner This could be a coach that you work with, or a friend who calls you every morning and says he's not getting off the phone until you get up and put on your cycling kit.

Don't sweat the setbacks When you do make a mistake, whether it's eating something you shouldn't have or missing a ride, acknowledge the slipup and move on. Most people beat themselves up and then continue down that failure path, giving up completely. But you need to love yourself and get back on track.



cannondale



A Tattoo You Won't Regret

Starla Teddergreen, 35, of team Fearless Femme, has been getting inked for half her life. She has this advice for cyclists considering their first tattoo. By Molly Hurford

► Make it personal

All my designs tell a story; one came to me in a dream. Don't just pick something off the wall. That's not going to mean anything to you down the road.

► Choose the right artist

Take the time to find someone who can execute it in the style that suits you and your personality. Look at their line work, their use of color. Or if it's black ink, their ability to do shadowing and not be too heavy-handed. Go with someone who is just as stoked on the design as you are. If the artist thinks it's stupid, that's going to come out in the execution.

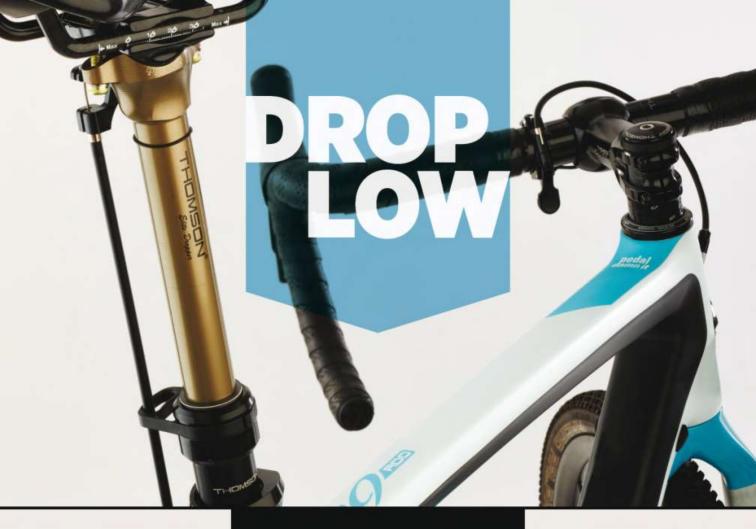
► Be sure you're sure

Usually, an artist will do a copy on your skin so you can see how it looks. Make sure you like the placement and the size. Sometimes it takes up more real estate than you anticipated. Don't be afraid to change your mind or give the artist feedback. You are paying a professional to do a job, and you'll have the result forever.

► Embrace the suffering

It will hurt. Kittens don't lick it on. For me, it becomes a form of meditation. You expect the pain, you feel it, and then you move past it. I've fallen asleep on the table before!

TEDDERGREEN ADMITS TO HER MOST EMBARRASS ING TATTOO AT BICYCLING.COM/STARLA.



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3. ISM PL 1.0

ISM's patented design eliminates numbness and allows for 100% blood flow. Their PL 1.0 saddle is new for 2016, and replaces the Breakaway model. MSRP: \$224.95

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4. POLAR M450 CYCLING COMPUTER

The M450 is a GPS bike computer designed to support all riding styles and goals. Compact, stylish, and customizable, it offers all the crucial features cyclists want including a barometer, Bluetooth® Smart heart rate and cycling sensor compatibility. Plan, sync and analyze your rides with Polar Flow app and web service. #RideTheWayYouWant

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MOST HUMBLING
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EXPERIENCES IN
CYCLING—AND
HOW TO HANG IN
THERE WHEN YOU
GET LEFT BEHIND

ROB MECEA, 48 PHOTOJOURNALIST

BROOKLYN, NEW YORK

I LIKE TO SUFFER. I like races when there is attack after attack after attack. I like how it feels when the group is trying to shake off the riffraff. Which might be why I keep coming back to the Tuesday night race at Floyd Bennett Field in Brooklyn. Racing at Floyd is like racing on the moon. There are gaping craters everywhere and a crosswind that will make you ride on two inches of road, fighting for a wheel and struggling to stay out of the grass. It takes only one mistake to find yourself dropped from this race.

was in the field. I took a hard pull to





▶ catch the break, and poof! I couldn't hold on. I fell back into a chase group and settled in. Every time it was my turn to pull on the front, someone would attack, and about five laps into the 12-lap race the attacks really started firing. My brain said, "Go!" But my legs said, "No." I watched the wheel in front of me slowly slip away. I was dropped. Again. So I jumped into another chase group during the bell lap, and even though I was struggling, I laid down a crazy attack, hoping I could hold off everyone for

"Yeah, I got dropped. Three times in one race."

just the final half of one lap. I got swarmed. Then I got dropped for the third time. Afterward a friend congratulated me. He said, "Wow, man! You held them off for so long!" Those words made my race. Yeah, I got dropped. Three times in one race. But that didn't matter. I'm just happy I animated the race.

ROB'S ADVICE

■ Don't be a hero. There is a reason you were dropped. Keep it steady and slowly eat up the chasm between you and the group ahead. The more people you pick up, the more you have to share the work with. ■ Have a great set of tires. There is little worse than getting a flat when you're already off the back. It's always nice to complete an event before they take down the finish line banner. ■ Be nice to everyone. Prepare comments for when you see folks who dropped you earlier and are now adrift. Be magnanimous and offer them encouragement. And never forget to thank the volunteers and cops who are out there in the sweltering heat or bitter cold clearing the road for you.

KELLY KRAUSE, 33

PRESS AND PUBLICITY
AUSTIN, TEXAS

I'VE BEEN RIDING FOR just about two years. When I started, I was more than 100 pounds heavier than I am now. It's pretty surprising that I even got on a bike, given that I couldn't fit into an airline seat and became breathless just walking up a flight of stairs.

Needless to say, when I first started, I got dropped—a lot. I don't see it as a failure. I approach every ride as a learning experience. If Jens Voigt says, "Shut up, legs!" I most definitely shout, "Shut up, mind!" I use that mantra before I clip in, climb a hill, or try to hang onto someone's wheel.

When I get dropped on a climb and I look up the road as the group rides away from me, I don't panic. I simply watch as other riders also begin to pop off the back. Then I work my hardest to chase them down and catch them. Every time, I make it a little farther. It's the tiny victories that keep me going.

I'd be lying if I didn't say I get shy, nervous, and fearful riding with groups of fast and seasoned riders. Eventually I know they will get tired of keeping my pace and go a little harder than I can push. But I know it's

"It's the tiny victories that keep me going." not mean-spirited. It's all about perspective. During the time I spend on a shop ride, or even pedaling with close friends, I look to them as mentors who are there to push me.

I know the only way to get better at anything is to push myself, and simply to try. The more I'm dropped, the more I want it, the more I come back and try again.



THE FIVE STAGES OF GETTING DROPPED

STAGE 1

SHOCK AND DENIAL

You shift up. You shift down. You grind. You stand. You watch with disbelief as riders pass on either side. You are like Moses standing still as a sea of Lycra parts around you. The realization sinks in: Your people are going, and they're going without you.

STAGE 2

ANGER

You get mad at everyone: your riding companions, your coach, the burrito you had for lunch. But you mostly get mad at yourself. That pain in your legs? It's weakness leaching out of your body.

STAGE 3

BARGAINING

You start making deals. I will stop eating Domino's. I'll quit sugar again, too. I'll lose 10 pounds. I'll ride more. I will be a better cyclist. A better person. I will turn it all around if I can just...hang...on.

STAGE 4

DEPRESSION AND LONELINESS

The group is gone. You try to answer existential questions like whether you will ever amount to anything and why you are still doing this stupid sport. There must be something you are better at. Like lying on the couch.

STAGE 5

ACCEPTANCE AND HOPE

You remember that everyone gets dropped. It's going to be okay! You are now free to live out the rest of this ride in quiet solitude. A sense of peace settles over you. Because now you are just out for a ride. And that's always a good thing.—Gloria Liu

CEDRICK GOUSSE, 31

VISUAL EFFECTS ARTIST ORANGEVALE, CALIFORNIA

A COUPLE OF SUMMERS AGO, I did this midweek race series in Rockleigh, New Jersey, and every time I showed up, I'd get dropped. It was frustrating.

After one race, I was griping to another guy and he said something I will never forget: "Everyone is going to get dropped at some point, but if you don't take the time to learn from it, it's going to keep happening."

So I changed my approach. I'd go out, get dropped, and then tactically dissect the experience. Was I simply not strong enough? Or did I

let too much of a gap form before responding? Why did I brake through that last corner while other racers were coasting through? Should I have expected that counterattack when we came back to the main group? Mentally replaying the moment where I found myself slipping from the

pack helped me recognize similar scenarios when they started to happen, and taught me how to react more instinctively.

After weeks of analyzing, something clicked. I began tearing it up every week. I began not just to survive, but even to win a few races. My focused approach led me to win the 2013 New Jersey State Criterium Championship (category 4), and I learned something even more important: Don't fear getting dropped, learn from it. It will teach you more about yourself and your competition than you ever could achieve in training alone.









HALEY WEAVER, 22

STUDENT AUSTIN. TEXAS

I ROLLED UP TO my first big group ride almost two years ago on a steel singlespeed with flat pedals, wearing leggings, sneakers, and a T-shirt. I looked around and saw a bunch of guys wearing spandex. They told me the ride would be long and fast and that I should probably come back when I had a real road bike. But I was determined and maybe a bit stubborn, and even though my stomach was doing backflips, I thought, "I'll go anyway."

The group decided to do an "easier" route, and I was fine until the ride heated up on a climb and I promptly got dropped. But one of the guys hung back, spinning in his big ring while I was grinding it out in my only gear. I was in so much pain and distinctly

remember yelling, "I'm going to die!" He told me I'd be fine if I just kept it steady and that he wasn't going anywhere. Which was great, partly because I didn't know the way back and didn't have any water bottles, and also because it kept me calm.

With each encouraging word, I pushed harder. At the top of the climb, the rest of the group was waiting. They congratulated me and

I was so proud. Then shortly afterward we hit another climb, and I was out the back. This time a different rider stayed behind to make sure I was okay and to encourage me. It was the nicest feeling.

Despite their sincerity, I was still embarrassed. I didn't show up again for three months, but when I did, I had a road bike. Had those riders not been so kind, I might never have come back. Nowadays I've started racing, and that is a whole new world of getting dropped. I try to pass this sentiment on to others: Be supportive, because you never know when someone needs just a little kindness to keep going.

"You never know when someone needs just a little kindness to keep going."





JACE'S ADVICE

- Set expectations. If it's going be a long group ride, let your friends know it's fine to separate, and suggest good cutoff points for slower riders to loop back.
- Be actively positive. You know that cliché about the physical act of smiling making you happier? Every time a rider passes me in the opposite direction, I make eye contact and wrench my sweaty grimace into a smile. When you're suffering on your own, keeping morale high is important. Be the one with all the tools, snacks, and water. Being overly prepared is essential when you may not have the support of other riders. Plus, you'll never be dropped too far behind if everyone knows you might have that one item they forgot.

JACE COOKE, 34

FREELANCE SOFTWARE DESIGNER BOULDER, COLORADO

FOR ME, GETTING DROPPED is a foregone conclusion, but it never keeps me from trying.

Last year, I entered the Steamboat Stinger 50-mile mountain bike race shortly after I moved to Colorado from New York City. I knew I was unprepared and that my bike of choice—a singlespeed—would make it challenging. But I also knew I'd be riding amazing terrain and would have the time of my life.

Within the first thousand feet of the start, we hit a steep climb and I thought, "This is gonna take a while." I began walking, and watched everyone else ride away. As the race went on, a series of events happened that

I could not have predicted: I got stung by bees. I grabbed too much brake on a tight switchback and hucked myself over the bar and into a tree—not once, but twice. I ended up in the medical tent with kibble-sized

"If you fear getting dropped, you miss out on a lot."

chunks of skin missing and my right knee a banged-up mess.

But as soon as I was bandaged up, I kept going. Even though everything hurt and a huge part of me wanted to stop, I remembered, You're on a bike in the mountains! I have this memory of grinning ear-to-ear while tears streamed down my cheeks. I didn't care if I was last; I just wanted to finish, for myself. Because when you're doing something you love, there is no embarrassment in going slow or crashing a million times. If you fear getting dropped, you miss out on a lot. Despite the bumps and bruises, I just feel better when I'm on a bike.



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EVRAZ

PRESENTING PARTNER: AB

ALEX HOWES, 27

PROFESSIONAL CYCLIST
WITH CANNONDALE-GARMIN
PRO CYCLING TEAM
BOULDER, COLORADO AND
GIRONA, SPAIN

NO ONE ESCAPES GETTING dropped. It doesn't matter your level. Every time I get dropped it's different. Sometimes it's a calculated thing-I'll be saving something for the next day, or I know I can smoke the descent. Other times it's heartbreaking as I watch a wheel in front of me slowly slip out of grasp. At the big races, especially during longer stages, I have to focus on doing my job the best I can; my only objective is to help my teammates for as long as possible. And when the gruppetto bell rings, I have to answer. When you're dropped, there's always safety (and hopefully help) in numbers.

One day in 2008 in a race in Portugal I lined up knowing that

"Every time I get dropped it's different."

there would be a moment where I'd have to say *adeus* and watch the field ride away from me. On that day I was so dropped that eventually the broom wagon caught me.

When the van rolled up, it was already full with about 10 guys hanging onto the sides. For the next 45km I clung on for dear life, switching sides and positions as my arms wore out. It hurt, but none of us would dare let go. Letting go would result in becoming utterly lost and ultimately crying at the US embassy after wandering aimlessly through the Portuguese countryside on a six-day vision quest. I may have been dropped from the race, but I still had to hold on to survive. **B**





RIDER SAFETY THROUGH VISIBILITY

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THE 695g SUPERLIGHT (===)

FUJIBIKES.COM/SL

LOW-KEY HI-VIS Building reflective details into cycling garments suited for high-intensity activity has proven challenging: Reflective materials historically have been inflexible, not super breathable, and generally unattractive. But some apparel makers have figured out how to WHEN IT COMES TO infuse reflectivity into stretchy, breathable, **CHOOSING KIT, DETAILS** and printable textiles, so it disappears when **MATTER. THESE 10** you don't need it, and doesn't inhibit performance. Nothing looks

TECH FEATURES WILL **ELEVATE YOUR LOOK—** AND YOUR RIDE.

BY MATT PHILLIPS // PHOTOGRAPHY BY MATT RAINEY unusual about Pactimo's RFLX arm and leg bands

until they're hit with a light—then they burst into hi-vis awesome-

ness. Pactimo Summit Speed RFLX Jersey Women's, \$110





7 SPLASH GUARDS

Even if your whole body is soaked, there's something particularly unpleasant about getting your butt splashed with rain or snowmelt: It's chilling, and it makes your chamois wet and gritty. That's why many winter jackets, like Sportful's Fiandre NoRain, incorporate a drop tail. If it's a really wet day, you're delaying the inevitable, but at least you'll be comfortable a little longer. This one snaps up and out of the way for dry rides. Sportful Fiandre NoRain Jacket, \$239

8 WIDE, SILICONE-PRINTED **LEG GRIPPERS**

Say good-bye to squeezy, hot, and itchy rubber leg grippers. Wider, lower-profile versions use dots or stripes of silicone on the inside of the leg band that allow the fabric to stretch so that it squeezes less and hugs more. The grippers keep your shorts in place, tan lines sharp, and silhouette smooth, with more comfort than ever. Velocio Helen Wyman Signature Winter Bibshorts, \$229

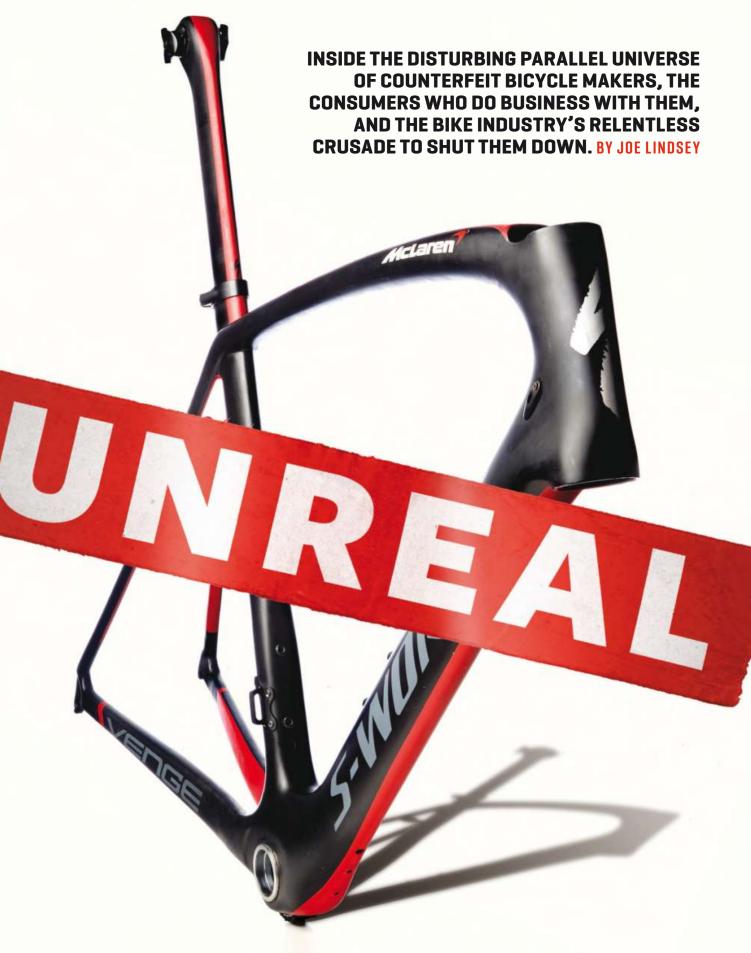
9 WATERPROOF **POCKETS**

Your smartphone is probably the most valuable accessory you carry on almost every ride, and it doesn't like getting wet. Waterproof pockets like the one on this Louis Garneau jersey let you keep your phone safe. No more storing it in a bag or case that gets in the way of answering calls and texts or taking pics. Louis Garneau Elite M2 RTR Jersey, \$180











The in-house testing lab at the Morgan Hill, California, headquarters of Specialized Bicycle Components is a gleaming example of engineering efficiency: a spacious, well-lit shop where brutish machines rip and wrench bicycle frames and parts to—and past—their limits.

On this particular morning, a special frame sits on the frontal-impact rig. The Venge is an intimidating broadsword of a bike, with a menacing coat of matte-black paint bisected on the down tube by a murderous red slash. A bright white decal spells McLaren on the top tube, the logo of Britain's storied supercar maker and F1 racing team, and Specialized's longtime technology partner.

The pedal-fatigue test is long and numbingly dull. Test engineers fix the fork to a rigid point on the test jig, and the rear dropouts to an extension that simulates how a frame pivots over the rear tire's contact patch. The final piece is a dummy drivetrain—including a cassette, chain, and overbuilt crankarms (both oriented at an angle to sustain maximum power transfer). Over the next 14 hours, the test machine alternately slams each crankarm with an excess of 1,200 newton-meters of force for 100,000 cycles—essentially a 120 rpm sprint for 14 hours straight. The test is meant to simulate cumulative pedal forces from years of riding.

Most of the time, frames get pummeled on the machine for the duration of the test cycle, then move on to the next phase of assessment. But this time, when the test finishes, there's a problem: The frame is cracked.

For a McLaren, the failure is doubly damning. Specialized doesn't have a separate set of fatigue benchmarks for the McLaren series, but these frames should be the best of the best of what Specialized makes. Launched in 2011, the McLaren series Venge features a carbon fiber construction that McLaren engineers ran through proprietary software designed to tune the entire frame to the absolute limit of technology and materials. Manufactured in a limited edition of 450, the complete bikes sold for \$18,000.

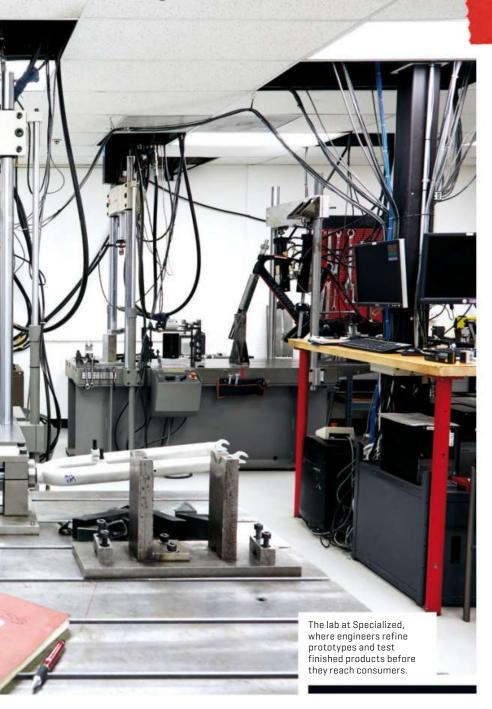
Yet Santiago Morales, the company's engineering manager for testing, seems unruffled by this bike's failure. He inspects the breakage, logs the number of cycles and the location and size of the cracks, then calmly unbolts the frame and hangs it on the wall. Morales is a naturally deliberate man. His studied indifference might be because he breaks frames every day, and there is no novelty to it anymore. But in this case, Morales acts unsurprised because he is unsurprised. He expected the

frame to fail at some point; the only ques-

frame to fail at some point; the only questions were where, when, and by how much. That's because the McLaren on the bench isn't a McLaren at all. It's not even a Specialized.

reg Tombragel just wanted a good race bike. Born and raised in the Cincinnati area, the 43-year-old IT leader with General Electric's aviation division started riding in 2007 on an inexpensive aluminum Bottecchia, "when I was about 50 pounds heavier than I am now," he says.

Though Tombragel picked up riding relatively late in life, he made up in ability what he lacked in experience. As his fitness and



physique transformed, friends suggested he try racing. And as he upgraded (he is now a category 2), so did his bikes. In 2010, he bought a BMC Racemaster SLXo1, a light, stiff model made from carbon and aluminum. When the seatpost seized in the frame four years later, and the warranty claim dragged out, he began looking for a replacement bike. He tried to buy a used Specialized Venge on eBay, "but you can't touch a one- to two-year-old frameset for less than \$1,500," he says. "I put in a few bids and lost." Although he has a good job at GE, he didn't want to spend the \$5,500 it would have cost to purchase a new, race-ready Venge.

Ironically, it was his search for legitimate

items that led him to a murky deal. "Because I'd been looking on eBay and Google, I got served up an ad in Gmail from DHgate. Sure enough, you have a frame that looks dead-on like it's a Venge," he recalls. "You could tell it was Chinese-direct. But I'd bought things from overseas on eBay, so I was comfortable with it." The bike was openly advertised as a Specialized. The cost: \$500, including shipping.

When the frame arrived, he took it to a shop to have the parts switched from his old BMC. But from the start, there were issues. Over the next few months, he began to notice that the dropouts weren't totally aligned. To spin freely, the rear wheel had to be clamped slightly askew. Other oddities: Standard water bottle cage bolts didn't fit in the frame. And after a few weeks, the screw-in cable-stop adaptor for the internally routed cables began to rust.

These weren't the only signs something was amiss. Not long after getting the bike, he had an unsettling experience on a descent. "In the chainstays and fork, there was a kind of squishy feel," he recalls. "I just didn't have any confidence in high-speed turns." Similar sensations followed on other rides. Additionally, he felt unstable on the bike when sprinting.

A return trip to the shop to try to fix some of the issues confirmed what Tombragel had begun to suspect. The shop owner showed a visiting Specialized rep this mysterious Venge with misaligned dropouts. After a few moments, the rep dropped the bad news: "That's a fake."

or the counterfeit McLaren to make it to Morales's test lab at Specialized HQ, it detoured first to a cluster of nondescript Salt Lake City warehouses in the industrial district southwest of the airport.

Inside one of these low-slung buildings, nestled within a warren of cubicles, is the nerve center of Specialized's anticounterfeit operations. One cube overflows with fake Evade and Prevail helmets, Body Geometry saddles, Aerofly handlebars, and bicycle frames. A second fake McLaren Venge leans against a wall. (A third rests in another pile of counterfeit frames in a warehouse.) In the cube next to this collection sits Andrew Love, the company's lead on brand security and investigations.

A former elite speed skater, Love took a customer-service job at Specialized in 2007. By that fall, he was spending 20 percent of his time chasing counterfeits, mostly jerseys and other soft goods. Then, in 2008, a fake Tarmac came in, and by the end of 2009, "the counterfeit attacks had become relentless," Love says.

"Our CFO at the time, John Rangel, came to the office one day and I asked him for a meeting," recalls the 44-year-old Love. He pulled Rangel into a conference room where he'd laid out a dozen or so counterfeit jerseys along with the fake Tarmac and said, "Do you have any idea of the tsunami that's coming?"

"He basically told me to write my job description," says Love, who is now the foremost counterfeit sleuth in the bike industry and leads a team of 10, three of them fulltime investigators, the largest in-house anticounterfeit unit in the cycling world. Speak with anyone in the industry about counterfeit and, without fail, they'll say: "You should really talk to Andrew Love."



Love was prescient about the coming wave. It hadn't yet hit cycling full force but, before long, online marketplaces from the familiar (eBay, Amazon) to the new and exotic (Alibaba) were flooded with fake goods.

Because it's a criminal enterprise, precise statistics on counterfeiting of specific products are difficult to come by. But according to the US Department of Homeland Security, its seizures of counterfeit goods have increased by more than 300 percent in the past decade,

topping \$1.2 billion in value last year.

The most-affected, and most visible, items tend to be luxury goods—the imitation Hermès Birkin bag or the street-corner Rolex. In the bike industry, prestigious brands like Pinarello, Specialized, and Zipp, that have distinctive, easy-to-recognize products, seem to get hit the hardest.

And high-end items—like carbon fiber bicycle frames—are most frequently mimicked. Because carbon fiber is layered into

molds to make the finished product, it's an almost ideal material to use in counterfeiting. It's easier to work with than metal is, and the final frame or wheel or handlebar can look identical to the real thing even if what's underneath bears no resemblance to it. If you can make a mold, you can make a fake. Helmets, too, are often counterfeited because they are manufactured in molds.

A fake purse or timepiece is one thing; it breaks, you get a new one. But the disturbing

reality that sets counterfeit bikes, parts, and accessories apart is that, when you need them most, they may fail you catastrophically. And if they do, there is no one credible standing behind them.

ounterfeiters generally are made up of two broad groups: factories that make illicit goods, and vendors who sell them. Multiple industry sources told us that sometimes they are one and the same, but more often they're separate entities. The factories churn out the fakes, and the sellers buy them to resell—often to customers in Europe and North America.

The practice is mostly beyond the reach of Western law enforcement: According to the Department of Homeland Security, almost 90 percent of counterfeit goods seized in the US last year came from China and Hong Kong. "You are never going to seize your way out of the problem," says Bruce Fou-

cart, director of the government's National Intellectual Property Rights Coordination Center, which manages anticounterfeit efforts across 19 federal agencies.

Complicating the issue is how counterfeit goods are sold. "It's unfortunate, but the Internet has made the problem worse," says Foucart. It gives crooks an opportunity to proliferate that didn't exist when counterfeit goods had to be sold in person, he says.

Some of the bolder counterfeiters sell direct on their own sites, like Greatkeen Bike and OEM-Carbon (domains that Specialized seized earlier this year). And fakes are still sold regularly on Amazon, eBay, and sometimes Craigslist. But Love estimates that 95 percent of the counterfeits he sees are on Asian marketplace sites like DHgate, where Tombragel bought his Venge, or Ali Express and Taobao (both part of Alibaba), which promise Western consumers direct access to Asian manufacturers, without the middleman.

"Alibaba alone is an umbrella with six or seven different platforms," says Michele Provera, vice president of brand protection for Convey SRL, an Italian internet brand protection firm that works with more than 40 companies in the cycling industry. "[It has] extremely evolved e-commerce and hundreds of millions of users a month."

Since Convey started working with Pinarello in 2013, the firm has taken down 45,000 listings for counterfeit goods (a listing can include multiple items). Wei Tang, who works on Love's team as Specialized's dedicated liaison to Alibaba Group sites, says that in the first seven months of 2015, he got more than \$5 million in fake inventory delisted just from Alibaba websites. Specialized knocks down about \$15 million a year total in counterfeit sales, across more than 80 platforms. In a written response to our request for comment, Candice Huang, a spokesperson for the Alibaba Group, said that it has more than 2,000 staff devoted to fighting counterfeit on its sites, a problem that founder Jack Ma has called "a cancer."

And the cancer is proliferating, thanks to new dedicated shopping apps that are beyond the reach of most anticounterfeit tools. Love predicts that the next frontier will be peerto-peer sales on social media—Facebook, he says, recently rolled out a mobile payments processor. With sales hidden inside a dedicated app, and financial transactions routed out of plain sight, the entire counterfeit network could drop from view, but be as close as a couple of swipes on a smartphone screen.

ove moves in slow motion in his Salt Lake City cubicle. The pain medication he's been using to counteract the lingering effects of a crash a few days prior is taking a toll. Despite operating at what he calls 70 percent capacity, he's irrepressibly bubbly as he scrolls through fake gear listings on directfrom-Asia sites.

In the fight against fakes, Love and outfits like Convey use a variety of tools. They work

ANATOMY OF A FAKE HELMET

A high-school student sent BICYCLING a fake Specialized Evade purchased direct from China via an app for Taobao, Alibaba's answer to eBay. It was an excellent copy, and even came with an owner's manual and extra pads. A close exam revealed subtle but crucial differences.



- The foam is less dense and is thinner-by as much as 4.5mm—than on the real Evade.
- The fake does not carry the stickers that indicate it meets US government safety standards.
- The plastic fit retention device is made of cheap, stiff plastic, with a balky ratchet dial, compared with the one on the real helmet.
- On the scale, the fake is 45g lighter than the real Evade.
- a roll cage, an internal skeleton (the larger dots in the cross section of the real Evade. above) that holds the helmet intact in a crash.
- The fake lacks In a crash, the fake would have offered almost no protection. Watch a video of us cutting a counterfeit Evade alongside a real one on **BICYCLING** .com/unrealhelmet.

REAL

Surprisingly, Tombragel's fake fork passed impact testing—but barely. If this had been a real Specialized, it would be re-engineered to pass by a higher margin.

with law enforcement to seize shipments, they pursue financial trails and get counterfeit sellers' PayPal and credit-card accounts shut down and funds seized, and they have high-level direct contacts with the market-place sites themselves.

But the benchmark tool is a form known as a takedown notice. Almost every major online marketplace has a version of it. (Amazon is the most cumbersome to work with, says Love;

eBay and Alibaba are more responsive.) The underlying idea is simple: A brand can register its trademarks and other intellectual property rights with the site, then use the form to submit a takedown request. Since the intellectual property rights are already on file, the sites rely on an affirmation by the rights holder that it believes, in good faith, that the advertised item is a counterfeit.

Naturally, counterfeiters find ways to

HOW TO AVOID A FAKE

■ CHECK OUT THE SELLER

So many counterfeit items originate in China that a seller based there should be an automatic red flag. Legitimate dealers have dedicated websites outside of their marketplace identities, which should be listed in their profiles. Use this to verify their dealer status with the manufacturer.

■ READ LISTINGS CAREFULLY

When it says "email for color/graphics," it likely means the seller has omitted those details to evade brand security. Also, positive reviews can be misleading; they might be notes from buyers simply saying the item arrived on time. Likewise, a seller's membership in a "preferred/verified seller" program may have little to do with the legitimacy of the merchandise.

■ RESEARCH BRAND POLICIES

If you see frames that look like Venges alongside others that look like Dogma F8s and Look 695s—that are all unlabeled—find out if the seller is an official dealer (most brands list them on their websites). Some, like Cervélo, don't allow online sales. Others do, but only via specific channels, say, on a bike shop's own site, and not on third-party platforms like Amazon.

■ USE COMMON SENSE

A brand-new Look 695 frameset for \$500? Don't be so taken by the deal that you suspend rational thinking.

outsmart the system. Tools like these rely heavily on automated web-crawling software that uses a keyword search to flag listings as questionable. So the counterfeiters simply will eliminate trade names in listing titles and product copy. The software also has image-recognition capabilities, particularly for logos. So the craftiest sellers will hide identifying details deep in a post, if they show them at all.

"Ali Express is just the heart of darkness," Love says with a chuckle, offering a running com-

mentary on questionable listings flagged for review. "Okay, here's a good one. These are fake Venges, but the listing doesn't have anything about Specialized until you get way down into it." In fact, the listing reads: "2015 New painting road bicycle carbon frame." The image is a plain black frame, but clearly a Venge copy.

Love pauses. "Yeah, here, in the photos, as you click through, here's an S-Works version."



HOW FAKES FAIL

Companies routinely conduct in-house safety assessments. Here's how two counterfeits fared in recent testing.

GIRO AEON HELMET

elmets sold in the US must undergo Consumer Product Safety Commission testing and carry a sticker certifying that they pass (or a Snell B90A sticker, essentially the same standard). Many fakes purchased in the US have incorrect markings, such as a CE (European standard). The CPSC test has multiple components: One measures the integrity of the straps; several others measure impact.

DYNAMIC RETENTION TEST

The helmet is strapped and adjusted to a level head form. A 4kg weight is secured to the chinstrap and dropped .6m. The straps can't stretch more than 30mm.

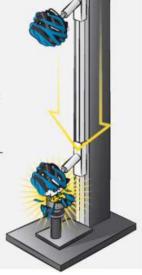
The Fake Exceeded 30mm = FAIL



IMPACT TEST

A helmet is strapped to a 5kg head form and dropped from various heights onto flat, hemispherical, and "curbstone" metal anvils. Peak instantaneous acceleration on impact may not exceed 300 Gs.

The Fake Peak acceleration of 1,052 Gs onto a curbstone anvil, roughly similar to your bare head hitting a surface in a bicycle crash.

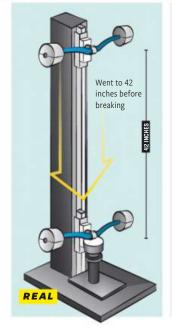


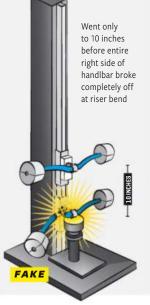
CPSC helmet standards don't have a penetration test, but the fake Aeon fractured into multiple pieces on impact. Because the helmet didn't retain its shape, the anvil broke through the shell and hit the head form directly.

ENVE RISER HANDLEBAR

THE TEST

Engineers clamp 16-pound weights to the handlebar ends and drop it from increasing heights, starting at 6 inches and increasing by 2 inches each time. To pass, the bar must reach drops of 24 inches before breaking. The test replicates drop-offs and jumps, but because the test rig is static, the forces are higher than would correspond to drops from the same heights on a real bike.





He clicks the seller store link, which reveals listings for frames from other brands, plus handlebars, wheels, even saddles. Another brief pause, then: "I'm gonna hammer this guy." He opens the takedown notice.

If it sounds unwieldy, it is. Even though Love can batch the requests, he has to submit each one manually, and that means examining each listing or seller to ensure it's a fake.

One effort largely beyond the reach of brand-security efforts: getting to the factories themselves. In very rare cases, the counterfeits come from a supplier that produces more items than ordered and sells the rest on its own, called "third shift" counterfeiting. The products are accurate, but unauthorized. Most of the time, the molds are reverseengineered from legit samples or even just photos. And the opaque, crawling nature of the Chinese justice system is a significant obstacle in chasing down these rogue factories. You could spend years on a case and end up with nothing to show for it, says Convey's Michele Provera. Foucart, of the National Intellectual Property Rights Coordination Center, picks his words carefully, since the agencies he deals with have to work with Chinese counterparts. "Chinese law enforcement has been cooperative in the last couple of years," he says, citing a case in which a maker of fake airbag parts was shut down. "I'm optimistic things will continue to improve." But he freely allows that counterfeits from China are his agency's biggest challenge.

Security specialists are exhausted by the Sisyphean nature of the fight, atomized across dozens of marketplace sites and dedicated apps aimed at retail customers buying individual items. "This isn't a shipping container of fake helmets coming in through customs," says Martin Nguyen, general counsel for Action Sports at BRG Sports Inc., parent company to Bell and Giro. "This stuff trickles across the border in ones and twos. It's almost impossible to interdict."

All of which points out an unpleasant truth about the McLaren Venge that Santiago Morales broke at the Specialized test lab: It wasn't seized from an online seller, it wasn't intercepted on a loading dock, or found as evidence in a warehouse raid. It was handed over voluntarily by the man who bought it: Greg Tombragel.

ombragel may not have looked closely at what he was buying or from where, but he wasn't hunting a fake. Mostly, he was just looking for a good deal. Though he briefly wondered if the | CONTINUED ON P. 119





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THE FIRST THING you should know—which is pretty obvious—is that this is an aerodynamic road bike. Actually, Trek claims this is the most aerodynamic road bike, thanks to the slippery frame shaping and highly integrated components, which hide every possible wire, cable, and small piece from the wind. (It has yet to be compared with the new Specialized Venge ViAS in a wind tunnel.)

The second thing you should know is that everyone at BICYCLING who has ridden the bike loves it. It's rare for a test bike to receive unanimous praise; in

fact, it's never happened before with an aero road bike.

Our testers are also unanimous on what they like about this Madone. One evaluation summed up the praise I heard from all seven riders we put on the bike: "It's one of those bikes that just feels incredibly fun to ride-speedy and snappy, but also surprisingly stable and comfortable." The Madone incorporates Trek's IsoSpeed Decoupler (bendy seat tube). And besides feeling fast, this aero bike is more compliant and comfortable than many roadrace bikes.

It is expensive. Models start at \$6,000 and hit more than \$13,000 in Trek's Project One program, through which we chose the parts for our tester and ordered up this flamingopink paint job. The integration forces riders to make sacrifices (don't like the aero handlebar? Tough). And the bike does amplify drivetrain and road noises. Still, this is one of the most remarkable bikes you can buy and one of the best Trek has ever produced.—MATT PHILLIPS

PRICE \$13,471, as tested weight 16.1 lb. (54 cm)







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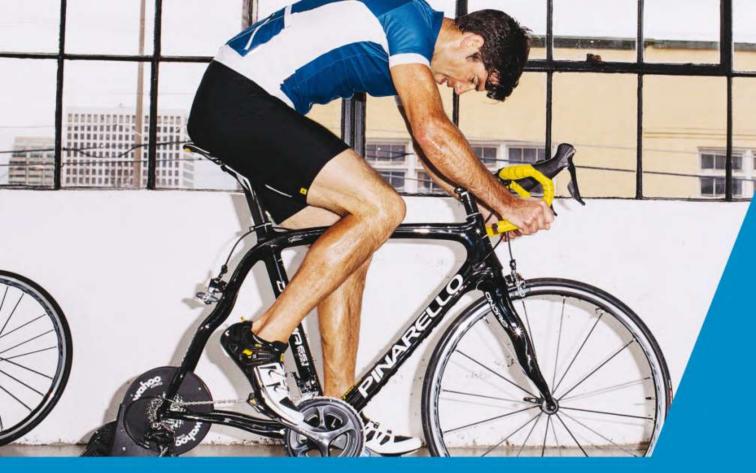
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The biggest issue with converting a 29er to take these 2.8- to 3.25-inchwide, 27.5-inch-diameter tires, is clearance—which is why the 2.8-inchwide WTB Trailblazer TCS Light is a good place to start. I've converted several different 29ers with this tire, including a Specialized Camber, Specialized Enduro, and BMC Trailfox.

About those wheels: Wider rims are required to reap the benefits of being able to run lower tire pressures, and we've found that those measuring 38mm to 50mm internal width work best. We like WTB's tubeless-ready Scrapers (\$150 each), and you can lace them to your favorite hubs. For a prebuilt wheel, we recommend Stan's NoTubes ZTR Hugo 52mm wheelset (\$729 per pair).—MATT PHILLIPS









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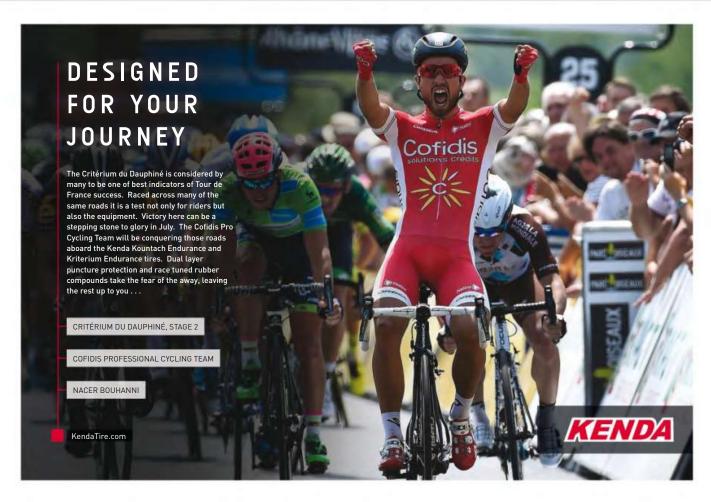
















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bike was counterfeit, he didn't push the question. "DHgate looks like eBay, and you can use your credit card," he says. "I felt like if it had the logo, it had to be real." The seller allowed buyers to pick paint. He went with a McLaren scheme, unaware that the real version was a limited edition that sold out immediately.

Love has a theory for what drives customers to buy fakes. He draws a line graph with price rising on the Y-axis and likelihood of a counterfeit increasing on the X-axis. He calls it the LOP Theorem; the letters stand for "legal," "opportunistic," and "piracy." He points to the upperleft corner: "Here is a Venge frameset for \$3,600 that's clearly legit." Then to the lower right: "At \$50, it's obviously a fake and you have a piracy-inclined buyer. But there's a gray area where people are opportunistic," he continues, drawing a large circle in the middle. "They may wonder, 'Is this a scam, or am I just getting a good deal?"

Tombragel's justification and Love's theory make sense to Dan Ariely, PhD, a professor of psychology and behavioral economics at Duke University who's studied the psychology of counterfeit buyers. We convince ourselves that it's okay to buy a fake, he says. "There is a rationalization where you say, 'These companies make too much money, and this frame is made of the

same material as the real ones," he says.

These rationalizations are generally rooted in buyers' perceptions—beliefs that are only sometimes true. For instance, many consumers believe that because almost all modern cycling gear is made in Asia, it all comes out of the same factories. "About 15 years ago, a lot of the European and American brands began to outsource their production," says John Neugent, a former bike industry executive who helped brands like Velomax Wheel Systems (now Easton Sports) do exactly that. But there's a broad spectrum of factories in Asia making cycling gear, from those that make products exactly to the specification of the brand, to so-called "open mold" suppliers, to full-on counterfeiters.

The circumstances here are nuanced. By outsourcing to Asia, Neugent explains, the bike industry bears some responsibility for the problem. "In Asia, even if you have intellectual property agreements with the factory, when you show people how to build your products, you teach them trade secrets," he says, adding that trade secrets are not subject to patent. "If the factory manager leaves and starts his own company, he has that knowledge. It's just the way the business works."

Scott Nielson, vice president of engineering at Enve Composites in Ogden, Utah, adds: "Once

you take a product to Asia, you have about two years before someone is doing something similar." Sometimes the difference between open mold and infringing is thin: a few millimeters in frame geometry, perhaps. Mike Clarry, a lawyer for Toronto-based Cervélo, says that the company regularly sees unlabeled frames online that look exactly like a P5 time trial bike. "From a legal point of view, it does infringe, because we have a patent that covers the cutout on the rear wheel," he says. But it's difficult to knock down because the seller avoids using trademarks like the name "Cervélo" or the accented "é" logo.

Neugent himself imports aluminum and carbon wheel components from Asia under his private-label, consumer-direct Neugent Cycling brand, a classic (and legitimate) cut-out-the-middleman operation. He doesn't engineer his own rim shapes, for example. Instead, he imports open mold products from Asia that aren't covered by a company's intellectual property rights. With minimal overhead and no dealer network, Neugent can sell for less than Enve or Zipp, but he still has to support the integrity of his product line, so he relies on years of industry experience to know which factories produce quality products.

Another consumer perception: Skyrocketing retail prices mean companies are getting rich



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even as they take advantage of cheap manufacturing in Asia. That's only partly true. In fact, the cost of manufacturing in China has risen over the past decade to the point that \$1 of manufacturing power in the US equals 96 cents in China. As well, direct comparisons of products show that retail prices have in some cases remained static or even declined over the past decade.

What is true: At the high end, prices have exploded. A Cannondale SuperSix EVO Hi-Mod Team is more than \$9,000. Trek's new aero Madone series starts at \$6,000 and tops \$12,000 in standard versions, as does Specialized's new Venge ViAS. Enve's SES 3.4 wheelsets start at \$2,375. It's no surprise, then, that consumers may suspect they're paying inflated prices when they're inundated with listings on marketplaces that promise the same products, but at wholesale prices that cut out the middleman. "Customers are bombarded by \$400 wheels," says John Balmer, aftermarket category manager at SRAM. "Their trust is shaken. They wonder, 'How can Zipp wheels really cost almost \$3,000? These seem like the same thing."

All the buyers of fakes we spoke with have stable jobs. Their decisions to purchase counterfeits were not driven by need—instead, they couldn't resist a bargain. But one thing they say never crossed their minds: Could there be a dangerous side to such an irresistible deal?

en Avchen is no rookie. The 58-year-old Reseda, California, resident is a three-time masters state track champion who ran the Encino Velodrome for more than 10 years. He's been riding and racing for decades. But this year, he started to do more of what he calls "fondo-type rides" and bought a Cannondale Synapse.

"I saw this handlebar on eBay that was carbon fiber," he says. "I wasn't interested in superlight weight. I liked the bend and wanted the comfort factor of carbon."

The \$70 price tag couldn't be beat, especially compared with \$250 or more for similar bars from brands like Zipp or Enve or 3T. "They had a name brand—Hylix," he recalls. That Avchen had never heard of it didn't bother him. "I looked at the feedback. They had a good score."

Just weeks after receiving the handlebar, he found himself sprawled across the pavement on Santa Susana Pass. Around him, a couple of cars had stopped. "I crawled to the side of the road, then looked at the bike," he says. A few inches out from the stem clamp, the right side of the handlebar was snapped clean off.

Avchen lost consciousness in the crash and doesn't remember the moments before, but he has since pieced together what happened. He

was descending on a straight, smooth section of road. "There's not a scratch on the bar or levers, so I didn't lose control and then crash," he says. "The bar broke and caused the crash." Based on his bike computer, Avchen estimates he was going about 30 to 35 mph. He broke his neck in two places, fractured an orbital bone and a cheekbone, suffered a concussion, and his body "was turned to hamburger."

Prior to the crash, Avchen never considered that buying direct from Asia could be dangerous. After all, Asia is home to some of the most sophisticated carbon fiber manufacturing in the bike industry. "I didn't think about injuries," he says. "I thought that if anything happens, they'll get me a new handlebar or refund the money. It's eBay." Avchen says he understands a key difference now: When companies like 3T manufacture in Asia, they enforce quality control on their suppliers that solo buyers like him simply can't replicate. Says Neugent: "People ask me all the time about the quality of direct-from-Asia products. I tell them I have no idea; it's up to the brands themselves to police it."

Several other buyers we spoke with had almost identical attitudes: Essentially, the purchase was a low-risk experiment. If the handlebar or frame broke, at worst they had lost a little money and they would have to buy a new one. None expressed concern over whether, if the product failed, it might do so in such a way as to harm them. Some fakes buyers even proudly advertise their purchases. They post unboxing or review videos on YouTube, weigh in on forum threads encouraging curious would-be buyers to purchase fakes, or create blogs extolling cheap Chinese carbon. There's even a "CC Chinarello" club on Strava with 23 members.

After Tombragel learned his bike was in fact a fake, one of his friends asked if he was afraid it would blow up on him. "I said no, I wasn't worried that it would break."

Had Avchen dug a bit deeper on Hylix, he might have discovered cause for concern. The parts are sold only on eBay, for starters; there is no sign of a broader brand presence. The handlebars often liberally borrow trademarked model names (Aeronova, Ergonova) from 3T, and the shapes look almost identical. Hylix handlebars may not strictly be counterfeit because they aren't advertised as 3T, but at the minimum they're a knockoff (which differs from a fake because it doesn't carry the brand name itself). On cycling forums, some buyers report catastrophic failures. One rider purchased a rigid carbon mountain bike fork only to have the steerer tube snap in half on the first ride.

Meanwhile Avchen is still recovering from his injuries, and even with insurance, he faces thousands of dollars in hospital bills and time away from work. If the handlebar that failed without warning had been a 3T or a Bontrager or any other legitimate brand, the company would have been legally liable. But Avchen doesn't have that option. "My cousin is a lawyer. He was like, 'Let's sue them," Avchen says. "I told him, 'Who? How? There's nobody to sue. These guys are in China."

Greg Tombragel estimates he rode a little over 1,000 miles on his McLaren, including some races. But once the bike was confirmed a fake, the experience changed. He still wasn't concerned about a failure, but the cumulative weight of the bike's issues—the rear wheel slipping in the dropouts under power, the strangely loose feeling in hard corners—got into his head. "When you're racing, and you don't have confidence, forget it," he says.

It was also a matter of pride. The guy riding the sweet-looking McLaren Venge wasn't on a McLaren at all, not even a Venge. "The guys I ride with all ride real Tarmacs and Venges, and once I was told [it was fake], I couldn't let them think it was real," he says.

When the Specialized sales rep pegged Tombragel's bike as a counterfeit, he handed Tombragel a card with some contact info on it, someone who might be able to help him, maybe even get his money back: Andrew Love.

ormally, Tombragel's fake McLaren might have joined Love's growing collection of fakes. But at BICYCLING's request, Love sent it to Morales in Morgan Hill for testing.

Morales' job might be one of the most fun in the bike industry; he gets to break stuff every day. But it's also one of the most sobering, because he sees the terrifying variability and randomness of counterfeits. That's because every carbon fiber product is a quality-control batch of one, and the finished outside shape tells you almost zero about what's really inside.

A frame can have hundreds of individual sheets of carbon fiber (called plies) of varying size and shape, which are placed in the mold in specific places in a rigidly defined order (called the layup). To make matters more complex, carbon fiber is unidirectional; its stiffness and strength characteristics apply only along one axis. To preserve those characteristics, a manufacturer must get the number, shape, and size of the plies, *and* their fiber orientation in the correct order, every time. That's to say nothing of the actual grades of carbon fiber used, or the resin that holds the fibers in place and adds toughness and durability, or the sophistication and reliability of the manufacturer's own production process.

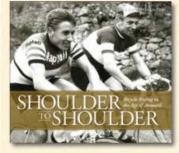
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offer warranty support and customer service. For certain products, they get regulatory approval that the item has passed testing standards.

Counterfeiters, on the other hand, skip those steps, while cutting corners on materials and manufacturing. On one of the fake Venges in Love's collection the bottom bracket shell is separating from the frame. Another has large voids in the head tube. (A void is where the layers aren't tightly compacted. Over time the tube cracks.)

Enve's Scott Nielson shares a particularly vivid example of how sloppy counterfeiters are. The company recently tested a fake riser handlebar. "It was 109 grams," he recalls. "For comparison, ours is 189. It snapped under my foot like a stick."

"People at a company spend a lot of time on what they produce," says Ariely, the Duke psychology professor. Customers see only the final product, and don't necessarily feel the need to pay for that development, he explains. "But without R&D you aren't going to get better products."

hat outcome Tombragel might have experienced on his McLaren Venge is unknowable. Maybe he'd be like the CC Chinarello crew, happily riding his fake with friends. The testing, however, suggests a far more frightening scenario.

Despite being heavier than a real Venge, Tombragel's frame sustained significant damage. In the pedal-fatigue test, both chainstays cracked at the bond with the bottom bracket; one almost entirely through. The frame was so deficient in torsional and bottom-bracket stiffness (21 percent less than an S-Works Venge in both cases) that a spreading crack developed in the down tube near one of the entry points for a derailleur cable, a location that surprised Morales—failure from pedal forces is unusual so high up on a stiff racing frame. And just 20 percent into the industry-standard vertical-fatigue test, meant to simulate potholes and bumps, a crack formed in the seat tube.

When carbon fiber starts to fail, it cracks imperceptibly at first, but at some point, forces overwhelm the material and it fails suddenly. Over time, Tombragel might have noticed more of that soft feeling he'd sensed when sprinting. But as the cracks spread, the situation could have been catastrophic, says Morales. The extra weight didn't translate to greater stiffness or durability. "This is not an engineered product in any way," he says. "It's essentially a mediocre canvas painted to look the same."

Regardless, Tombragel's direct-from-Asia experiment is over. He figures, between the cost

of the frame and swapping parts from (and back to) the BMC, he's probably out what it would have cost to buy a secondhand, legitimate Venge on eBay. He'll get another bike, and he'd like it to be a Specialized. "I respect the brand," he says. "The Venge and Tarmac, to me, are the best-reviewed race bikes out there. I mean, that's what I wanted before going down this crazy path."

But his McLaren is gone. It's not illegal in the US to own a counterfeit item, like it can be elsewhere. So why did he voluntarily surrender it to Love? Tombragel hoped Love could help him get his money back. But that wasn't the only reason. After what he'd learned, he thought that it belonged with Specialized.

"It didn't feel right to even keep it." B

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This Way

OUR ONGOING EXAMINATION INTO THE NATURE OF EXISTENCE, THE MEANING OF LIFE, AND MUCH MORE IMPORTANT STUFF



MONICA GARRISON

36, founder of Black Girls Do Bike, a group that empowers women of color to ride PITTSBURGH, PENNSYLVANIA

T(0	or		
Allez! □	ĭ Venga!		
Arriving □	Leaving		
Breakaway 🏻	□ Sprint		
Caps¹ □	□ Hats		
Cat² ⊠	□ Dog		
Beer hops □	Bunnyhops		
Fashion □	☑ Style		
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New □	☑ Used³		
Passion⁴ ▲	□ Price		
Drop bar □	☑ Flat bar		
Fame □	☐ Glory		
Fast □	■ Strong		
Flat⁵ 🏻	□ Rolling		
Sheetz 🗹	□ Wawa		
Giro d'Italia □	☑ Tour de France ⁶		
Dream ⁷ ☑	□ Plan		
Grace ⁸ ▲	□ Power		
Handbuilt □	☐ High-tech		
Heart 🛚	□ Legs		
Less ⁹	□ More		
Low socks □	☑ Tall socks		
Pack □	ĭ Solo		
Racing □	■ Riding		
That □	■ This		

1. I'm secretly an urban hipster at heart. 2. David Letterman once said cats are pets for smart people. 3. I'll take a good solid workhorse with flair any day. 4. We can worry about the price later. 5. It's extremely hilly here in Pittsburgh and I'm anti-hill. I like a relaxed ride and just hanging out and taking in the scenery. 6. That was the first one I discovered and it helped me fall in love with cycling. Getting to see the countryside of France is just part of the draw. 7. Plans are like rules—they're made to be broken. 8. The most fun-to-watch athletes are graceful in all respects. 9. Simplicity is underrated. If you can accomplish the same thing with less, it's likely done more beautifully.

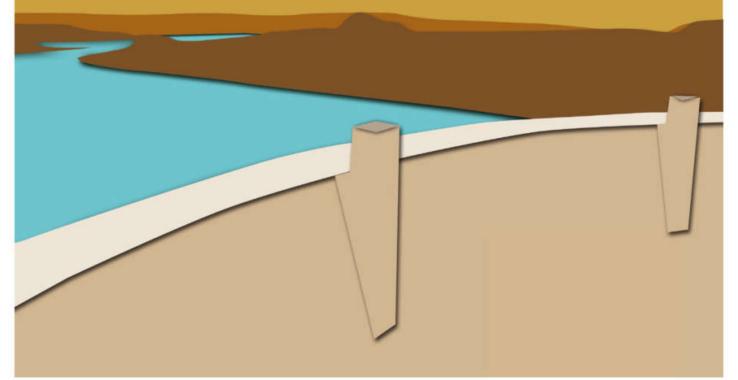
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